



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

July 7, 2010

Mr. Ashok S. Bhatnagar  
Senior Vice President  
Nuclear Generation Development  
and Construction  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 2 -- REQUEST FOR ADDITIONAL  
INFORMATION REGARDING LICENSEE'S FINAL SAFETY ANALYSIS  
REPORT AMENDMENT RELATED TO SPENT FUEL STORAGE AND  
HANDLING REVIEW (TAC NO. ME2734)

Dear Mr. Bhatnagar:

By letter dated January 11, 2010 (Agencywide Documents Access and Management System Accession No. ML100191686), the Tennessee Valley Authority (TVA) submitted Final Safety Analysis Report (FSAR) Amendment No. 97 for Watts Bar Nuclear Plant (WBN), Unit 2. The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the information provided by the TVA in FSAR Amendment No. 97.

In an effort to complete the NRC staff review, enclosed is a request for additional information (RAI) regarding the spent fuel storage and handling review for FSAR Section 9.1.

A response is required within 30 days of receipt of this letter.

If you should have any questions, please contact me at 301-415-6606.

Sincerely,

A handwritten signature in cursive script that reads "Joel S. Wiebe".

Joel S. Wiebe, Senior Project Manager  
Watts Bar Special Projects Branch  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-391

Enclosure: RAI

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REQUEST FOR ADDITIONAL INFORMATION  
WATTS BAR NUCLEAR PLANT, UNIT 2  
FINAL SAFETY ANALYSIS REPORT AMENDMENT NO. 97  
TENNESSEE VALLEY AUTHORITY  
DOCKET NO. 50-391

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Balance-of-Plant Systems Review (SBPB)

Background: Many of the fuel storage and handling related structures, systems, and components within the WBN Auxiliary Building are shared between the two units, including the spent fuel pool, the spent fuel cooling and cleanup system, and the spent fuel handling equipment. The WBN Unit 2 FSAR describes the degree of conformance with the NRC General Design Criteria (GDC) of Title 10, *Code of Federal Regulations* (10 CFR) Part 50, Appendix A. The ability of shared systems to perform their safety functions for credible combinations of normal and accident states is addressed in GDC 5. Pursuant to the requirements of 10 CFR 50.34(b), applicants for operating licenses must include in the FSAR a description and analysis of the structures, systems, and components of the facility, and the evaluations required to show that safety functions will be accomplished.

**RAI 1** The NRC issued Amendment Nos. 40, 48, 67, and 77 to WBN Unit 1 operating license on September 23, 2002 (ML022540925), October 8, 2003 (ML032880062), January 18, 2008 (ML073520546), and May 4, 2009 (ML090920506). These amendments authorized irradiation of tritium production burnable absorber rods (TPBARs) within WBN Unit 1 core and transfer of these irradiated TPBARs through the shared WBN spent fuel pool. In granting these amendments, the NRC staff considered evaluations of the effect of storage of these TPBARs within the shared WBN spent fuel pool on heat generation and criticality prevention. However, the WBN Unit 2 FSAR through Amendment No. 97 does not address the presence of the TPBARs within the shared spent fuel pit and the effect of these TPBARs on safety functions related to fuel storage. Update the FSAR to provide appropriate information demonstrating that safety functions would be accomplished considering the effects of TPBAR storage in the shared spent fuel pool.

Enclosure

- RAI 2** Section 9.1.3.3.3, "Pool and Fuel Temperatures," of the WBN Unit 2 FSAR describes that, with a 12 day decay time, the maximum heat load associated with a full core discharge is  $28.1\text{E}+06$  Btu/hr while the maximum heat load for a full core discharge following a normal refueling outage case is  $32.6\text{E}+06$  Btu/hr. This statement is essentially identical to the corresponding Section of the WBN 1 Updated Safety Analysis Report, which was potentially based solely on operation of WBN Unit 1. Since the operation of a second unit would increase the frequency of fuel discharges to the spent fuel pool, the heat load values may not be representative of dual-unit operating conditions. Confirm the expected heat loads for representative dual-unit scenarios and describe the methodology, including decay heat models, used to determine the heat load.
- RAI 3** Address intentions with regard to implementation of the guidelines in NEI 08-05, "Industry Initiative for Control of Heavy Loads," for WBN Unit 2.

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Watts Bar Special Projects Branch  
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